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Infrastructure Governance and Corruption:

Where Next?

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Abstract

Governance is central to development outcomes in infrastructure, not least because corruption (a symptom of failed governance) can have significantly negative impact on returns to infrastructure investment. This conclusion holds whether infrastructure is in private or public hands. This paper looks at what has been learned about the role of governance in infrastructure, provides some recent examples of reform efforts and project approaches, and suggests an agenda for greater engagement—primarily at the sector level—to improve governance and reduce the development impact of corruption. The discussion covers market structure, regulation, state-owned enterprise reform, planning and budgeting, and project design.

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Infrastructure Governance and Corruption: Where Next?

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Introduction

Governance of infrastructure is hardly a new topic for developing countries or donors. The 1994 World Bank *World Development Report* on infrastructure tackled a range of issues including public and private roles in provision, regulation and management of state owned enterprises. It highlighted the vital importance of governance and suggested many approaches repeated in this paper --most of the differences between the two are a matter of degree rather than direction. This suggests caution in assuming we can speed progress in infrastructure rollout or efficiency gains based on dramatic new insights from the last thirteen years. Indeed, given the complexity of institutional reform and the slow pace of improvements in governance, progress is likely to be incremental. Nonetheless, a new pragmatism regarding market structures combined with evidence from approaches tried over the last ten years does provide some guidance. And precisely because many approaches are yet to be rigorously evaluated and our knowledge base still remains limited, we should promote risk-taking in and evaluation of projects. This paper discusses what we have learned about the role of governance in infrastructure, provides some recent examples of reform efforts and project approaches, and suggests an agenda for greater engagement primarily at the sector level to improve governance and reduce the development impact of corruption.

A New Pragmatism in Infrastructure

The last twenty years has seen considerable change in the delivery of infrastructure services worldwide. The 1980s and 90s saw developing countries, the World Bank and other donors disappointed with the sustainability of their investments in state-owned infrastructure --concerned that investment was not having a long-term impact of the quality and extent of utility and transport services that they desired. Privatization and competition were proposed responses to this situation, and they have had some successes. In some sectors, private competitive provision has become the norm. 80 percent of the world's countries have three or more competing providers of mobile phone services, for example (World Bank, 2005). Across sectors, there is evidence that private provision can provide a boost to quality of services and extent of provision (Estache, 2006).

But at the same time it appears that many of the institutional weaknesses underlying poor provision and low sustainability are not magicked away by allowing private investment, and in some sectors private provision is likely to have a comparatively minor role. In developing countries, only 5 percent of private investment in infrastructure has flowed to water and sanitation over the last ten years, for example. Across infrastructure as a whole, governments and donors still account for around four fifths of sector investment. [2] And while private providers have, on average, improved service quality and access, overall impact has been limited compared to initial hopes, there are numerous examples

[2] It is worth comparing estimated annual investment needs for energy, transport, water and sanitation infrastructure in developing countries of $131bn a year to private investment commitments in those sectors in developing countries estimated at $35 billion in 2005. Private investment figures from the PPI database, investment needs from Fay and Yepes (2003).

of failed provision, and increasing evidence of public disenchantment with private providers (Estache, 2006).[3] Although telecommunications provision has been transformed, and at least in some markets the institutions of electricity production has considerably altered, in other sectors the pace and success of market change has been limited.

This mixed performance has led to a new pragmatism surrounding infrastructure delivery in developing countries. This pragmatism involves an acceptance of the likely limits to private provision under light regulation. In some cases, where competition is viable, pricing is market-based and the payback time on investment is relatively short, a liberalized private market has become the norm –as with mobile telephony. In other cases, where monopoly provision predominates, where pricing is politically sensitive and investment payback periods are long, the public sector will frequently remain the dominant force in the market.

This new pragmatism also involves an acceptance of the vital role for the institutions of sector governance whether provision is in public or private hands. In a set of industries where monopoly provision is likely to remain the usual model –including transport infrastructure as well as water and sanitation alongside electricity distribution—the role of government remains vital whether services are provided privately or publicly. If there is an attempt to attract private investors, in a set of industries where payback periods are long, the institutional environment covering prices and the broader investment climate will be a key to attracting finance. If infrastructure remains in the hands of the state, then the quality of the government institutions managing the infrastructure stock will be vital to determining outcomes.[4] In short, the impact of infrastructure governance remains regardless of the ownership or management control of assets.[5]

[3] Between 1998 and 2002, the percentage of people who disagreed with the statement privatization "has been beneficial" for their country increased from an average of 45 to 77 percent across Argentina, Bolivia and Peru (World Bank, 2006b).

[4] It is worth noting the contrast with mobile telephony in this regard. Because of the comparatively low sunk costs of investment in mobile provision, private competition has proven itself to be robust even in conflict and post-conflict environments of minimal governance such as Somalia and Afghanistan. Somalia had no central government when mobile firms began to compete, and they quickly provided coverage and pricing which were considerably better than regional averages (World Bank, 2005). Afghanistan only passed a telecoms law creating a regulator after there were already two competing firms offering services to over one million customers. Similarly, in countries that get out of the way, the international telephony business is as competitive as the chocolate industry (Rossotto et. al., 2004). While there remain a number of regulatory functions in the sector (covering interconnection, for example), the most important role for governments in this sub-sector is to remove legal impediments on competition.

[5] The far greater importance of the quality of governance than the quantity of government is confirmed at the macroeconomic level by growth regressions suggesting that the size of government as a percentage of GDP is weakly related to growth while the strength of institutions is associated robustly (Kenny and Williams, 2001, Easterly and Levine, 2002).

Governance Matters for Outcomes in Infrastructure

We have considerable evidence on the importance of governance to investment returns across sectors. For example, we know that investment in general in Sub-Saharan Africa, where governance is comparatively weak, has had little impact on growth (Easterly, Pack and Devarajan, 2003). This also implies a low return to aid flows --nearly two dozen African countries receive aid worth more than 50 percent of total public expenditures (Moss, 2005). In addition, we have considerable macro evidence that aid performs better in the presence of strong institutions (Collier and Dehn, 2001).[6]

For donors, even where individual infrastructure projects provide strong microeconomic returns in weak governance environments, their macro impact is reduced because projects are 'cherry-picked' and have little impact on the overall shape or size of a country's investment program. Indeed, the weak correlation between aid flows and overall investment suggests that aid may frequently displace local investment in strong projects, and the local investment resources are instead consumed or invested in white elephants.[7]

The importance of institutions to infrastructure performance also emerges from an analysis of the costs of corruption in the sector. Corruption is a symptom of failed governance, but can also act to further weaken the governance environment. Corrupt acts not only raise the price of infrastructure but can also reduce the quality of and economic returns to infrastructure investment.

In Eastern Europe and Central Asia, construction firms report paying an average of 7 percent of government contract values in bribes to win bids or alter terms (Kenny, 2006). Costs are also raised by the collusion between firms that these bribes can facilitate. Firms pay additional bribes in meetings with labor and construction inspectors. These activities will all raise the price of building new infrastructure. The average cost for a upgrading a two-lane road with a bitumen surface across countries is around $33.2 per square meter. For those countries with below average costs, the Transparency International Corruption

[6] Analysis of World Bank projects suggests the same thing (Dollar and Levin, 2005, Wane, 2004). The extent to which institutional development matters to outcomes in infrastructure is suggested by an OED (1999) evaluation of infrastructure projects in Africa, where only 18 percent of projects were considered sustainable in the late 1990s: "infrastructure projects require a level of institutional capacity that simply does not exist in many Sub-Saharan African countries," the report concluded. It should be noted that recent scores for sustainability are considerably higher, the 2006 Annual Review of Development Effectiveness (IEG, 2006) suggests that, across regions, 79 percent of infrastructure projects exiting 2001-2005 are sustainable, compared to 56 percent in the period 1996-2000. The report also suggests that sustainability of all projects in Africa has risen from 38.9 in 1996-2000 to 63.8 2001-2005.

[7] A recent metastudy of 43 papers examining the link between aid and accumulation found that, across the studies, aid had a small, statistically insignificant positive effect on investment and a small, statistically significant negative effect on savings (Doucouliagos and Paldam, 2005). Feyzioglu, Swaroop and Zhu (1998) suggest that concessionary loans to a particular sector do not significantly increase spending in that sector (see also World Bank, 1998). At the micro level, van de Walle et al (2005) do find that, depending on their technique, a World Bank project's net contribution to rehabilitated road increments may be as high as 66 percent (i.e., only one third of the aid displaced local spending).

Perceptions Index averaged 3.6, compared to 2.4 in countries with above average costs – suggesting higher costs in countries perceived to be more corrupt (Kenny, 2007).[8]

Theft of materials and outputs is an additional economic cost of corruption. In Indonesia, a physical audit of roads built under the oversight of village heads uncovered 'missing materials' worth 24 percent of total expenditures (Olken, 2004). In Bangladesh and Orissa, in India, leakage due to illegal connections or underbilling accounts for as much as 30 percent of generated power (Gulati and Rao, 2006). Similarly, Davis (2004) suggests that unaccounted for water makes up 35 percent of total flows in India. Utilities are also saddled with the cost of staff in place purely to extract rents. Overstaffing in public utilities can be significant, as can bribe payments to obtain 'ghost' employment positions (Castalia, 2004).

Consumers pay additional bribes for connections, raising the final cost of infrastructure services. The average firm in enterprise surveys of Eastern Europe and Central Asia spends 11 percent of its bribe budget on facilitating connections to utilities, for example (Kenny, 2006). Davis (2004) used a survey approach to estimate that the average speed payment or bribe made to get connected to piped water in India works out at $2.64 per legal customer. Davis also reports on the widespread practice of bribing for falsifying meter-reading, which reduces the sustainability of service provision.

But the larger impact of corruption extends beyond inflated prices and staffing and the financial cost of theft. In the case of the Indonesian roads project, for example, each dollar's worth of stolen materials reduced returns to the project by $3.41, because the poor construction which resulted significantly reduced road quality and life. Again, in the Dabhol power project in India, Enron's $20m in payments for what was euphemistically described as the 'education and project development process' led to the construction of a power plant that is financially unsustainable to run, at a cost of around $3 billion (Kenny, 2007, see Box 1 for a discussion of the health impacts of corruption in water).

As the Enron case suggests, failures of governance are often connected to mistargeted spending. In Indonesia, at the start of the 1990s, road maintenance accounted for about 47 percent of the central government grants to districts for roads. By the end of the decade this had dropped to 15 percent. Expenditures should be more than 17 times their current level to maintain the existing road stock in good condition (Kenny, 2006). There is anecdotal evidence connecting this fall in maintenance expenditure to the greater opportunities for rent-seeking presented by new construction.

Finally, bribes to regulators can lead to the provision of low-quality services or over-generous contract terms. Construction-related permitting appears to be a regulatory area particularly prone to corruption, and this can carry a high human cost (Kenny, 2007). In 1999, more than half of all buildings in Turkey failed to comply with construction

[8] A regression analysis suggests that lower corruption is significantly associated with lower costs in this sample, a result weakly robust to the inclusion of GDP –see Kenny (2007) for more details.

regulations. One result of this evasion was a considerable number of avoidable fatalities in the 1999 earthquake in which 11,000 people died.

Box 1: Estimating The Health Impacts of Corruption in Water

A survey of evidence of corruption in Water provision in South Asia in 2001-2 suggested that contractors frequently paid bribes to win contracts worth between one and 6 percent of contract values, followed by kickbacks during construction of between 6-11 percent of the contract value, as well as forming 'sanctioned' cartels that raised prices by fifteen to 20 percent. In addition, the survey reported that kickbacks went in part to cover low quality work, in which materials worth between 3 and 5 percent of the contract value were not supplied (Davis, 2003). Assuming an economic impact of each dollar of such missing materials of between $3-4 in terms of shorter life and limited capacity, this suggests an economic cost equal to 9-20% of already inflated contract prices. These two forms of corruption together may have raised the price of a sustainable water connection by 25 to 45 percent.

What is the economic and social cost of this corruption? An analysis of household survey data for 43 developing countries suggested that increased access to water had a significant impact on child mortality, for example. Each additional percentage point of household access to water was associated with reduced under-five mortality by one death for every two thousand children born (Liepziger et. al., 2003). Best practice prices for a household water connection are around $400 (Fay and Yepes, 2003). If this price is raised by 45 percent to $580 because of corruption, fewer households can be connected.

Given a cost of $400 per household connection, each $1m investment in low income country piped water projects might save nineteen children a year who would otherwise die from water-related disease.[9] At a cost of $580 per connection, $1m in water investments might save only 13 children each year. Over twenty years, additional costs imposed by corruption would mean that an additional 113 children die before the age of five for each $1m invested in water projects. One recent estimate suggested that low income countries could invest $29 billion in water projects over the ten-year period 2000-2010 (Fay and Yepes, 2003). If all of this investment took place in a low-corruption environment, this might lower the global toll of child deaths by over 540,000 each year, compared to 375,000 children if all of the investment took place in a higher-corruption environment.

This is a very partial accounting of the impact of corruption in the sector. Limited household access to water has impacts beyond increased childhood mortality –it increases illness and death amongst older children and adults as well. This has follow-on effects in terms of educational outcomes and income generation. Corruption and weak governance also lowers overall sector investment –not least by deterring private finance of rollout. And limited access is only one impact of corruption, which also increases the cost and reduces the quality of water provision. Nonetheless, even as a partial and approximate indication of the impact of weak governance in the sector, the access and child mortality calculation suggests that corruption in water is a matter of life and death.

Failed governance can lead to the construction of the wrong infrastructure, poor construction and quality of provision, insufficient maintenance and high levels of thefts and losses, then. This can dramatically reduce economic returns not just to individual projects but to the entire infrastructure stock, and lead to lower levels and less efficient provision of infrastructure provision –a result that has been empirically illustrated in a number of studies (Estache and Kouassi, 2002, Kaufmann et. al. 2005, Castalia, 2004, Bo and Rossi, 2006). Box 2 discusses the example of corruption in Jakarta's water supply system.

[9] Based on an average household size of five people and a crude birth rate of 30 per 1000 people (the average for low income countries). The exact estimates are 18.75 and 12.93 deaths averted, respectively.

Box 2: Ten Years of Governance Weaknesses in Jakarta's Water Supply

In the late 1980s, only 14 percent of Jakarta's population lived in households connected to the municipal water system. Fully one third relied on water from street vendors. They paid between three and fifty times as much for water as did people with a household connection. Water vendors got their supplies from public taps. There were very few of these taps –1,200 serving at least 2.5 million people. This increased the labor costs of the street vendors, who usually transported water using jerricans piled on handcarts. Nonetheless, the vendors were earning hourly wages two to three times the average for men with primary or lower education. The public taps were controlled by operators, who (in turn) charged three to six times their per liter costs for water.

Why were prices so high –so much higher than any reasonable calculation of labor costs and wholesale prices suggested that they should be? And why were there so few public taps? It wasn't that the cost of construction was out of reach –five to ten thousand additional taps could have been constructed for less than the price of one of the city's underutilized water treatment plants.

It appears that the street vendors were running a cartel, supported by bribes to local officials and water utility staff. After subtracting the costs of labor, equipment and payments to public tap operators, nearly one half of the price paid to vendors for water by households was accounted for by cartel rents and bribes. In turn, after accounting for official payments to the utility for water and operating costs, about 60 percent of vendor payments to public tap operators were available for excess profit and bribe payments. And it appeared that the number of public taps had been optimized to maximize the rents available for water vendors and utility staff.[10]

Governance in Jakarta's water sector faced additional challenges in 1997 when two European water companies, one partnering with a son of President Suharto, another with a close associate of the President, were awarded concessions for the city's water supply without a competitive bidding process. In this case, contracts allowed for limited financial oversight and, additionally, had to be renegotiated in the aftermath of the Asian financial crisis. While 90 percent of the population of Jakarta now has 24 hour access to water, non-revenue water remains 50 percent of the total supply and a number of performance targets (along with sufficient tariff increases) have been missed (Castalia, 2005).

Jakarta's experience suggests the complexity and impact of failures in governance. Under public provision, low income households in Jakarta were paying as much as 7 percent of their meager resources on water in the dry season –and around two thirds of that was due to the costs of collusion, bribery and skewed investment decisions related to maximizing rents. And the case of Jakarta, alongside a number of other challenging experiences with water concessions linked to non-competitive award around the World, has dampened both firm and government interest in private sector investment in the sector. Alongside limited and inefficient public investment, this has dramatically curtailed the rollout of water services to the unconnected –leaving many more people reliant on low quality and expensive water from vendors or frequently unreliable borehole water.

As a result, the macroeconomic impact of an infrastructure project can be significantly reduced by governance failures even if the project itself is carefully chosen, well designed and corruption-free.[11] Not least, other investment decisions may remain mistaken and O&M budgets in many developing countries are too low to sustain existing

[10] A simple solution to this problem adopted by the Jakarta government was to allow any householder with a tap to sell water. As a result, end water prices to unconnected households dropped between 30 and 60 percent. Source: Lovei and Whittington, 1991.

[11] For example, *Infrastructure at the Crossroads* (World Bank, 2006b) noted that World Bank staff, "in the context of the broader sector dialogue, spend a substantial amount of time steering government officials away from poorly designed projects." This is an important effort, but may only have a macro impact if the effort is to stop such investments occurring at all rather than stop them occurring under Bank projects.

stocks of infrastructure –as reflected in poor indicators of quality. Taking a project approach to corruption would miss these impacts, which are frequently at the core of the overall development impact of failed governance (Kenny, 2006). In turn, this suggests that 'ring fencing' a project against corruption only impacts a small part of the total expenditure portfolio of a particular sector, and it may impact the part of the portfolio that needs it least.[12]

These lessons suggest that for the majority of developing countries a broad focus on governance is the most effective method to improve the macroeconomic returns to infrastructure projects, and similarly the most effective method to reduce the development impact of corruption in the sector. And while private involvement is likely to change the nature of governance challenges, it does not remove those challenges. As a result, the governance agenda is a high priority across sectors and investment projects regardless of market structure or the strength of the case at the micro-economic level for an individual investment.

Improving Governance in Infrastructure Sectors

The record of donor attempts to strengthen institutional structures in developing countries is mixed. For example, a number of sobering World Bank evaluation department reports conclude (inter alia) that "[w]ithin just a few years, the Bank has developed and mobilized a variety of tools… that bring the quality of public sector institutions into the spotlight. So far there is little evidence that governance is improving…"[13] and that "[t]he Bank does not apply the same rigorous business practices to its capacity building work that it applies in other areas. Its tools… are not effectively used… most activities lack standard quality assurance processes…"[14] These general lessons regarding governance are as likely to apply in infrastructure as elsewhere.

This mixed record is a result of the complexity of the political economy of reform, the need to fit institutional solutions to varied country and sector circumstances and a limited knowledge base regarding what works. Furthermore, there are limits to the progress that we can expect to catalyze in this area. Institutions change slowly, and their quality is strongly correlated with GDP per capita.

[12] Furthermore, a general lesson from the evidence surrounding the success of anticorruption efforts is the following: "because corruption is itself a symptom of fundamental governance failure, the higher the incidence of corruption, the *less* an anticorruption strategy should include tactics that are narrowly targeted at corrupt behavior and the *more* it should focus on the broad underlying features of the governance environment" (Shah and Shacter, 2004).

[13] OED (2004) which also suggests regarding programs that promote empowerment "both the intended and actual poverty impact of this type of intervention remain to be demonstrated."

[14] OED (2005a). See also OED (2005b) on investment climate work: "World Bank Group strategies for improving the IC [investment climate] have suffered from a lack of knowledge about what types of institutional arrangements will work… The feasibility of reform depends on the political economy of the reform process…"

Nonetheless, some countries are doing much better job at the same GDP per capita in providing infrastructure outputs –better policies and institutions can make a difference. Countries at the same level of income per capita have notably different access rates to infrastructure as well as transmission and distribution losses, for example (see Figures 1, 2 and 3). Given this, and bearing in mind the caveat that our knowledge base of rigorously evaluated governance interventions is extremely limited, it is worth examining what the experience has been in governance reforms to improve general development outcomes and sector infrastructure performance.

Macro-level responses such as fiscal reform for transparency and development focus in budgets, civil service reforms including competitive selection and merit-based pay, reform of general procurement rules and auditing standards, legal reform and increased freedom of information should all have an impact on corruption in infrastructure sectors as well as elsewhere (Levy, 2007). Indeed, much of the sector agenda for improved governance builds upon the same principles and approaches as these macro interventions, but tailored to the particular features of infrastructure provision. These include efforts to increase competitive pressures, reduce unnecessary regulation and better monitor necessary regulation, improve planning and budgeting processes, increase civil society participation, reduce the discretionary power of individual bureaucrats and improve financial and physical auditing. These reforms can be replicated at the local level, an increasingly important element of governance reform since the spread of decentralization (see Box 3).

Box 3: Local Level Governance Reforms in Campo Elias

A World Bank Institute-supported program in the municipality of Campo Elias in Venezuela provided support to citizen participation in governance that significantly improved survey scores of satisfaction with government services and reduced perceptions of corruption and inefficiency. The Campo Elias Action Plan involved (i) management reforms including standardization of administrative procedures and integrating administrative data into a computerized system (ii) participatory budgeting processes and (iii) publication of government documents and transactions histories alongside the creation of a tripartite auditing committee made up of business, citizens and government officials (World Bank, 2000).

Sector Structure

We have seen that the overall record of privatization and competition has not been as positive as initially hoped by those who promoted them. Having said that, it does appear that private and especially competitive provision is broadly associated with greater efficiency and improved outcomes (Estache 2006). The cities in Kolkata and Mumbai have long been served by private electricity utilities, and commercial losses in those cities are between 12-15 percent as compared to 30-35 percent with state-owned electricity utilities in India, for example (Gulati and Rao, 2006). Estache and Kouassi (2002) find that private provision is linked to greater efficiency in African Water utilities. Private competition also reduced the level of bribes paid to utilities for services in a study of 21 transition economies (Clarke and Xu, 2004).

Conversely, evidence from corruption surveys in transition countries suggests that state-owned firms are at least as if not more likely to bribe for contracts and licenses. Government-managed construction operations are particularly prone to materials theft, as the case of the Indonesian roads project discussed earlier makes clear. Evidence from Tanzania also suggests that that one of the most egregious violators of labor standards on construction sites was the National Housing Corporation (Kenny, 2007). A model in this area is Chile, which has extended private competitive provision in public works infrastructure considerably further than most developing countries –and at the same time is expanding the model of separating the policy, regulatory and client functions of government (Box 4).

Box 4: Chile's Reform of Public Works Governance

Chile's Ministry of Public Works relies heavily on private provision, with 65 percent of investment resources for public works provided by the private sector. An independent regulatory body, the Superintendent of Public Works, will oversee transparent concession contracts oriented towards outputs and performance rather than inputs or investment mandates. A new set of benchmarked service standards will drive contract design and oversight, leading to 'conservation' concessions for road networks, for example. Model contracts will be designed to maximize competitiveness in the bidding process as well as focus on outcomes. The regulator will oversee both implementation and any contract renegotiation.

Having said that, the level of competition and the role for private participation will vary considerably by country and sector. In construction and telecommunications, there appears to be little role remaining for monopoly providers, public or private. But in other sectors plausible market structure is likely to vary considerably depending (not least) on the size of the market. Around half of the developing world has embarked on power market reform, for example, but private risk investment with unbundled competition in both wholesale and retail markets is unlikely to be plausible in the majority of them (Besant-Jones, 2006). Although regional cooperation in areas such as power pools may extend the role for competition to some smaller countries (See Box 5), for most smaller low-income markets, management contracts may be the most plausible role for private participation.

Box 5: Extending Romania's Competitive Energy Market

Romania's initial market liberalization in energy involved bilateral contract negotiation between suppliers and distributors. In some cases, supply contracts were signed by managers of state-owned generation companies at prices below market value as part of a deal that was alleged to be corrupt. Under further sector reform, all power contracts are now competitively auctioned by the market operator, OPCOM. Romania hopes to develop OPCOM into a regional market operator for the Energy Community of South East Europe, providing services and selling shares in the company to neighboring countries.

The introduction of private provision, especially absent competition, requires improved governance both in the initial privatization but also in the regulation of providers. The process of involving the private sector has itself has been a significant source of rents. The widespread problems with Independent Power Producers are perhaps some of the best known examples. For example, only 40 percent of generated power from 42 IPPs in

the Philippines is used at a cost 33 percent higher than state-owned production (Gulati and Rao, 2006). Fifteen IPPs were authorized in Malaysia without competitive tender providing electricity at prices up to 50 percent higher than state-owned production under contracts that required purchase, and owners included numerous close friends of Dr Mahatir (Smith, 2003). This suggests the complexity of private provision and the extensive possibilities for governance failure.

Transparent (largely) price-based international competitive bidding involving a strategic investor appears to have been a more sustainable model for introducing the private sector in electricity (Besant-Jones 2006). With privatizations of existing assets, beyond international competitive bidding, there is also an important role for reduced discretion through, for example, the use of standard charter documents and increased transparency of valuation estimates and the methods and results of the process (Kaufmann and Siegelbaum, 1997). Governments can also bring in trusted international transactions advisors under the sponsorship of international institutions such as the International Finance Corporation.

Concession contracts are a common form of privatization in infrastructure, and a form that has run into significant implementation problems. In Latin America, approximately 90 percent of water and transport privatizations and over half of energy privatizations over the 1990s were in the form of concessions. These concessions did improve efficiency, but did little to reduce final prices or extend services (in part because of increasing indirect taxation). Furthermore, concessions were frequently renegotiated (in three quarters of cases in water), on average after just over two years of signature. Renegotiation was far less likely in countries with a pre-existing regulator established under law, where concessionaires were selected based on price for concession award rather than lowest tariff, and where tariff regulation was based on rate of return rather than a price cap (Estache et. al. 2003). This confirms other findings on the importance of sequencing in privatization (creating regulatory institutions first). It also suggests the importance of empowering the regulatory body with access to quality accounts on which to make rate of return estimates. In turn, this suggests the need for corporate governance reforms within state-owned enterprises as well as concessionaires. These are subjects taken up in the following sections.

Regulation

The governance of regulation can have a significant impact on outcomes. Governments should set standards to which infrastructure firms and operators can be held accountable and which citizens can understand and monitor. The plausibility of such rules are important –setting service standards that cannot be met or enforced merely weakens credibility and sector efficiency. Consistency of regulation is also vital –with significant sunk costs and long payback periods, infrastructure providers need comfort that the business environment will remain stable over the long term (Parker, 2002).

The roles and objectives of institutions responsible for regulation need to be clearly set out in primary legislation and contracts. Predictability can be increased by publishing ex ante the parameters that will be used in making decisions –such as price adjustment formulas and timetables of events. Stakeholders should also be able to participate in the discussion of draft regulatory decisions.[15] Contracts, licenses, regulatory decisions, consultation papers, legislation, tariff review procedures and methodologies, timetables and the results of consultations can all be public documents, yet a PPIAF survey of regulators in 2005 found that less than 30 percent of regulators currently publish contracts and licenses (Bertolini, 2006).[16]

In larger countries with comparatively strong institutions and in certain sectors (most notably telecommunications), independent regulation has proven a successful model. Andres et. al. (2007) find that regulators in Latin America that were established under law, well funded by regulatory levy, and with a fixed-term regulatory commission screened by legislators, were considerably better at aligning cost of capital and rate of return. Gasmi et. al. (2006) find that independent regulation (with tenure) financed from operator contributions with clear authority (decisions that could only be overruled by the courts) as well as transparency (open meetings open and textual explanations of decisions) and power over licensing interconnection, pricing and quality of service produce better outcomes in telecoms in terms of network rollout.

Where the fully independent model is adopted, regulators should be able to recruit their own staff based on needs and pay market rates (not necessarily civil-service rates) to attract and retain expertise. They should have access to their own source of funds and decide how they are used (subject to rules regarding transparency, accountability, audits, and other controls on the abuse of power). Regulatory officials should only be able to be dismissed before the end of their term on certain grounds, such as incompetence, malfeasance, and conflicts of interest. The agency ought to be able to enforce decisions through fines, penalties and, ultimately, preventing a firm from operating.

Even with these features, regulators in developing countries will have comparatively limited capacity, suggesting the importance of simplicity in regulatory design. The US Federal Communications Commission budget of $304 million, for example, is probably larger than total telecoms sector revenues in around 89 of 139 low and middle income countries for which we have data.[17] A focus on a few precise and simple regulatory instruments over theoretically more efficient but complex rules is particularly vital in countries with limited regulatory capacity (Besant-Jones, 2006).

One important step towards regulatory simplicity is to remove overlap between agencies. Mongolia, a country of just two million people, has over 20 separate governmental

[15] The regulatory process should require interested parties to be consulted before the government comes to a decision and should require the government to explain its decision. Given the importance of price control decisions, it may make sense to allow the regulated company to appeal on grounds of the substance of the regulator's reasoning, not just on matters of law.

[16] 71 percent of East Asian regulators disclosed procedures and decisions, while 42 percent disclosed licenses and contracts, in a 2004 survey (Muzzini, 2006).

[17] Estimated on the basis that telecoms revenues are approximately two percent of 2005 market GDP.

entities with price-control powers over infrastructure, and regulatory powers overlap both between national agencies and between national and local authorities. New Zealand, with an economy 40 times as big as Mongolia's, has one institution regulating prices in infrastructure. In the Philippines, an independent water regulator had authority to set standards and apply rules regarding financial renumeration in the sector. But the contracts governing private provision of water in Manila also set out standards regarding financial arrangements and standards. This confusion led to public disputes, complex appeals processes and, in the end, political intervention in tariff-setting (Ehrhardt et. al., 2007).

Regarding the removal of unnecessary or unenforceable regulation, pricing regulation can be limited to cases where there is evidence that a monopoly or dominant provider of a service without inter-modal competition might plausibly abuse that power to raise prices. Quality regulation can be limited to cases where there is a strong public interest overcoming that of greater flexibility to provide low quality, low cost services to low-income consumers and where the regulation is plausible to enforce.

In construction, for example, it is not clear that high regulatory burdens are improving outcomes -there is no correlation between the number of procedures involved in getting permission to build a warehouse and the number of worker accidents across countries.[18] This may be related to weak enforcement or inadequate rules –in either case this may be grounds to reconsider regulatory design. Easing the process of regulatory compliance will also have a role in reducing governance failure, through approaches such as consolidated clearances and time limits to license issuance (if a license is not issued or denied within a certain period, it is automatically granted).

Regarding new institutional structures, given that institutional change is a slow process, it is also an important principle to work as much as possible within the existing framework of organizations rather than create new structures that require significant adaptation. The creation of new regulatory agencies which are themselves institutionally weak has led to government interference in decisionmaking regardless of de jure independence –one notable case was the reversal of a 100 percent tariff increase in Bogota's water rates proposed by the regulator and over-ruled by the president (Ehrhardt et al 2007).

One example of an institutionally simple approach is to combine a monitoring agent within the appropriate ministry with provider contracts that define service standards and tariff setting (or operator remuneration). This removes the need for an independent regulatory agency and has worked with some success in countries including Senegal, Cote d'Ivoire and Vanuatu (Ehrhardt et al 2007). Related approaches involve the creation of an advisory regulatory agency with its own budget which is empowered to provide public and independent advice regarding issues such as tariff structures and quality, but where the legal authority to direct change remains lodged with the concerned Ministry.

[18] See Djankov et al. (2000) for a broader discussion of the limited impact of regulation of entry on quality of service provision, but its stronger link with the extent of corruption, across a range of sectors.

At the same time, it is worth noting that the survey of Latin American infrastructure concessions implemented in the 1990s cited above found that the incidence of early contract renegotiation was 40 percent in cases where the regulatory framework was embedded in the concession contract compared to 17 percent where the regulatory framework was embedded in law (Guasch, 2004). It appears that there are no universally superior alternatives in this area, and that country circumstances will determine different optimal responses.

Information disclosure can be a tool to encourage self-regulation. Mandatory disclosure requirements in the US regarding toxic releases by firms has been linked to greater emissions reduction efforts, for example (Konar and Cohen, 1997), and a similar approach has worked in developing countries. Related to this, broader measures to improve private sector corporate governance can reduce the supply of bribes –including strengthening disclosure rules of local financial markets and requirements for independent directors and audits. In particular, governments might demand minimum corporate governance standards for companies involved in large public infrastructure transactions (Castalia, 2004).

Furthermore, there is a role for holding company officials criminally liable for regulatory lapses as a tool to encourage self-regulation. The UK allows for conviction of senior company officials in cases where gross negligence leads to death. Cases include fatal accidents arising out of unsafe systems of work or the provision of unsafe goods or services (Kenny, 2007).

Pricing regulation can be a particularly contentious issue, and one which has frequently derailed private participation. Governance reform can improve the likelihood of satisfactory outcomes in this area as well. In a number of West African water concessions, prices paid to operators are set by the regulator at cost-recovery levels, but prices paid by consumers are set by the government, which subsidizes providers for the gap between consumer prices and cost-recovery tariffs. In a transparent system, where both cost recovery and consumer tariffs, as well as the subsidy, are advertised, the costs and benefits of low tariffs will be clear to consumers, operators, and taxpayers alike. Community participation can further ease the political economy of pricing reform which is frequently a key component of the governance agenda (see Box 6).

Box 6: Community Participation in Sustainable Pricing

The local water company in Banjar in South Kalimantan, Indonesia faced water losses of 40 percent, provided water for only 12 hours a day and suffered considerable revenue shortfalls. As part of a restructuring plan to improve the quality and sustainability of provision, the water company proposed price increases which were initially rejected by the local government. The company took the plan to its customers, and entered into a contract with the community promising better customer service in return for higher tariffs. With community support, the local council passed the tariff increase, and water quality and supply (along with customer service) have increased markedly in the period since then (World Bank, 2005).

SOE Management

Attempts to improve the efficiency of State-Owned Enterprises through governance reforms are not new –frustration with an earlier round of such efforts in the 1970s and 1980s was one factor behind the push for private participation. Many approaches have not been carefully evaluated, and what we do know suggests mixed impacts (Irwin and Yamamoto, 2004, Gomez-Ibanez, 2006). Nonetheless, where full privatization is not an option, state-owned enterprises may still benefit from a number of internal and external governance measures, even if hopes for dramatic improvement should be tempered.

A first step is to extend alternatives to centralized monopoly provision where possible. Extending competition through deregulation or contracting out of non-core operations is one possibility. For smaller firms, (for example, local water operatives), customer-governed enterprises such as cooperatives may be an attractive option (Gomez-Ibanez, 2006).

Corporatization is an additional tool. This is designed to strengthen SOE autonomy, through a separate statutory authority, with a distinct legal identity, separate accounts and its own board of directors (preferably including members from the private sector and stakeholder groups as well as government) (Gomez-Ibanez, 2006). Full corporatization requires the enterprise to be incorporated under the same laws that govern private corporations.[19] Management is given considerable autonomy in areas such as HR, financial management, pricing (under regulation) and service provision. Measures of autonomy in these areas have been associated with considerably better performance in terms of coverage and quality in an econometric analysis of water utilities from Africa, Asia and the Middle East (Braadbaart et. al., 2007).

The World Bank has been involved in a number of such SOE reform efforts in infrastructure (See Box 7). The case of Chile's performance in public works points out that there is also a role to extend the independent state-owned agency model beyond infrastructure to construction. Tanzania's TANROADS agency has also moved some distance towards this model –supported by a hypothecated roads fund, emphasizing maintenance over investment and utilizing performance agreements with private contractors. A somewhat similar effort to establish a Road Sector Development Team overseeing output-based contracts in Nigeria is under development.

The experience of developed countries suggests that corporatization alone is a necessary but not sufficient condition to improve performance. Focusing only on the internal

[19] SOEs might be owned by a body independent of sectoral ministries (on the model of Temasek, Singapore's national holding company overseen by the Ministry of Finance, or the Indonesian Ministry of State Owned Enterprises). Uganda's Parastatal Monitoring Unit has the responsibility of publishing reports based on SOE submission of audited accounts and a certification of the safekeeping of the enterprise's assets that summarize financial and operational performance, agreed actions to improve that performance, the value of direct and indirect government subsidies and the value and terms of debt stock (Irwin and Yamamoto, 2004). At the same time, such approaches may create another level of decision-making, and their ability to prevent government intervention in management on short-term political grounds has proven limited (performance contracts have often suffered the same fate) (Gomez-Ibanez, 2006)

governance dimension is unlikely to improve SOE performance in a sustainable manner (Vagliasindi, 2007). In particular, SOE management does not face any credible threats for non-performance from the external environment in which it operates –there is no plausible threat of takeover or bankruptcy as an *ex ante* performance and monitoring instrument, especially in cases where the SOE is a monopoly.[20] As a result, there is a role for additional techniques to increase transparency and efficiency.

Box 7: Three Cases of SOE Reform

A reform project involving the Phnom Penh Water Supply Authority included putting in a management team with performance-based incentives, corporatization, water meters installation and automated billing and accounting, customer surveys and a new tariff structure based on cost-recovery models and accompanied by a public information campaign. Similarly, the Bangladesh Rural Electrification and Renewable Energy Project supported rural cooperatives with management operating under a performance contract, with market-based salary structures (World Bank, 2006b).

In the Dominican Republic, a reform program has supported a considerable improvement in energy bill collection rates. In 2004, only 45 percent of power generated in the country was paid for by consumers. Theft and non-payment of bills by government, the private sector and households alike was rampant. Under the reform program, new legislation criminalized electricity theft, and provided for easier access to customer premises. Performance-based management contracts were introduced for distribution companies, metering was extended along with meter inspection, bill payment processes were simplified and illegal connections regularized. Energy was rationed on circuits with large losses to provide and incentive for regularization. Auditing and publication of accounts was combined with social surveys and the use of a 'social contract' between providers and stakeholders promising better quality in return for better payments, all complimented by an active communications program. By January 2007, the percentage of power generated that was paid for by consumers had risen to 56 percent

In some countries, an SOE audit committee is chaired by an independent non-executive director and externally audited accounts meeting International Financial Reporting Standards (IFRS) are published. Additionally, SOEs that borrow from the private sector without the benefit of a government guarantee will face the scrutiny of lenders and credit-rating agencies. Listing a minority of shares will create another level of monitoring by shareholders.

One of the key challenges in addressing public sector governance is that SOEs are frequently given broad developmental objectives, such as ensuring employment, or creating necessary infrastructure for economic development. If there are multiple goals and especially if they cannot be clearly quantified, then performance cannot be accurately measured –and SOE managers cannot be rewarded on the basis of performance. Where possible, it may be simpler to set a clear target of financial performance, utilizing regulatory oversight and transparent subsidy tools to achieve non-financial objectives.[21] Governments might consider quantifying costs and benefits of meeting equity objectives

[20] Continued state-directed credit, equity injection and finance deficits have created perverse incentives for managers of SOEs and perpetuated soft-budget constraints (Kornai et al. 2003).

[21] In this model, a regulatory body oversees (or publicly advises on) pricing (and, if necessary, quality) of provision. The concerned sectoral ministry uses transparent subsidy mechanisms to support social goals related to pricing and rollout (World Bank 2006).

and entering them explicitly in the accounting system. In South Africa, SOEs and the executive authority agree on a "Corporate Objective Statement" which expresses in terms of outputs the financial and non-financial performance that the SOE is expected to meet. This document is public.

Regarding petty corruption, performance improvement can be considerable. In Andhra Pradesh, transmission and distribution losses were reduced from 38 to 26 percent 1999-2003 in large part through metering, theft control and the regularization of 2.25 million unauthorized connections (Gulati and Rao, 2006). As part of a process of enterprise reform, a number of human resources tools can be used to help improve performance and reduce corruption amongst public officials including training (especially on codes of conduct), whistleblower protection, complaints mechanisms, improved disciplinary procedures, transferring staff in posts considered 'at risk,' random checks on performance by investigators posing as customers and reducing anonymity through name tags and other information disclosure (Sohail and Cavill, 2007).

On the demand side, citizen's charters can clarify the standards that consumers can expect in terms of quality, timeliness, cost and coverage of services. These can be based on regulatory standards where appropriate but should be actively disseminated to the public alongside information on complaint and redress mechanisms. An additional tool is the use of freedom of information acts. These have been passed with little impact in a number of countries,[22] but when well designed, used to provide specific information on services and supported with active civil society right to information campaigns, they have had some notable successes in improving infrastructure outcomes (See Box 8). [23]

The Concerned Citizens of Abra for Good Government in the Philippines was founded to provide a monitoring role utilizing information provided by governments and its first case in 1987 involved following up on an announcement by the Department of Public Works and Highways that 20 projects had been completed in Abra. The group was able to document that some projects had not begun and others had been completed with substandard materials. As a result of its investigation, eleven officials were found guilty of misconduct and dismissed (Sundet, 2004).

Citizen report cards are a related approach. The report card process surveys households about their experience and satisfaction interacting with public officials and receiving government services. They can be combined with a social audit where official reports of works and expenditures are reviewed and compared to the results of customer surveys. The World Bank-supported Indonesia Urban Sector Development Reform Project also

[22]More than 50 countries have freedom of information laws, and 15–20 more are considering them. But the mere existence of a freedom of information law is clearly inadequate. A recent survey of the effectiveness of freedom of information laws in Armenia, Bulgaria, Macedonia, Peru and South Africa found that, on average, only 35 percent of requests for information were fulfilled (sources: http://www1.worldbank.org/prem/PREMNotes/premnote93.pdf and http://www1.worldbank.org/publicsector/legal/freedom.htm)

[23] Good design incorporates a presumption in favor of information release, clear and simple procedures for requests, responses and timings, an appeal mechanism and penalties for non-complying officials.

uses NGO oversight including routine checks on specifications in each construction project location, as well as citizen score cards and satisfaction surveys.

Box 8: Providing Information on Services and the Role of Citizen Involvement

In Brazil, the *Sistema Nacional de Informacoes Sobre Saneamento* provides national information on water, sanitation and solid waste service provision. The SNS collects data on 77 operational, financial and quality indicators from 26 regonal and 260 municipal service providers. The information is published on the Internet as well as in a year book and CD.

A clear case of a gap between the de jure and de facto state of information disclosure is provided by India. A 2006 survey of water and sanitation utilities found that only one third of the information they were legally required to be publish –covering information on licenses, permits budgets and subsidies-- was actually available. Nonetheless, where information is disclosed, Indian experience suggests that this can help to improve services. Parivartan, a citizen's group, uses the Delhi Right to Information Act to demand information on the status of infrastructure construction budgets, construction projects and repair work. In one case, Parivartan supported residents living alongside an unmaintained road to file a series of information requests which revealed that official records suggested the road had been repaired multiple times, that the work had officially been carried out by the engineering department of the Corporation of Delhi, and that materials had been issued to staff for the repair work. The series of requests pinpointed materials theft within local government as the cause of road deterioration in this case.[24]

The World Bank-supported Orissa State Roads Project will use implementation of the state's Right to Information Act as the underpinning of governance and anticorruption elements built into project design. A project disclosure policy based on RTI requirements will be supported by new document and information management systems alongside a complaints management system and corruption perceptions surveys. In addition, the project reports business process re-engineering to simplify and standardize department processes, procurement reform including e-procurement, the creation of a Chief Vigilance Officer and third-party monitoring.

Budgeting and Investment Planning

Evidence of the quality of budget management in 25 heavily indebted poor countries (HIPCs) suggests there is considerable need for progress, with the average country meeting just over five out of 13 performance benchmarks in the areas of comprehensiveness, credibility, execution and external scrutiny.[25] Budget transparency has been an important target of efforts such as the Extractive Industries Transparency Initiative (See Box 9). But similar weaknesses regarding transparency and efficiency are also apparent at the sector level, where planning and project selection procedures are often very weak.

Planning and technical and economic capacity to evaluate projects should both help to provide better criteria for project selection (avoiding the introduction of white elephant investments at the last minute on an 'emergency' basis). Improved budgeting will also reduce cases where funding is inadequate to cover ongoing contract payments –such situations place government officials in the position of deciding which contracts get paid first. For example, Paraguay is developing a five year itemized sector budget, a road

[24] Sources: Satyanand, (2007) and www.parivartan.com, accessed 04/25/07.
[25] Calculated from p. 36 of Levy (2007).

sector strategy and a road social contract in consultation with stakeholders that will guide expenditures and provide an agreed framework for measuring successful delivery. In Chile, the Ministry of Public Works is moving towards an in integrated planning process which will use a supply-chain approach to ensure investments are made based on multi-modal analysis using improved economic and engineering assessment.

Box 9: EITI

The Extractive Industries Transparency Initiative is a global program aimed at improving transparency and accountability in resource rich countries. The heart of the program is publication and verification of payments made to governments by extractive industries. Over the 2003-2006 period, 25 countries committed to implement the EITI, and the Bank was providing assistance in more than half of these countries in 2006. Multi-stakeholder committees to oversee EITI implementation had been set up in 12 countries and auditors had been appointed in 8 countries. The World Bank administers the EITI Multi-Donor Trust Fund, which is used to provide technical and financial assistance to countries implementing the program (World Bank, 2006).

Demand estimation will also improve the economic return to projects (World Bank, 2006b). This involves not only improved economic analysis of projects, but also better cost forecasting. Predicted outcomes should be compared with predicted and actual outcomes of a relevant reference class of past projects to determine their likely accuracy, and forecasts should be published, publicly debated, and subject to independent review (Kenny, 2007).

There is a further need to improve expenditure tracking through levels of government. In some cases, infrastructure services involve multiple levels of government simultaneously, and this can create particularly complex governance challenges. Rural roads is one such case (see Box 10). Tanzania's Pro Poor Expenditure Tracking Survey in 2001 covered four sectors including water and rural roads. The Tanzania PETS found significant leakage. One district had recorded only 10 percent of receipts from central government for road funds over 1999-2000, for example –this encouraged the Treasury to advertise all transfers from central to local government in the media (Sundet, 2004).

The response to expenditure tracking analysis can be improved if civil society is actively engaged. For example, in South Africa the Public Service Accountability Monitor based at Rhodes University provides a database of information on budget allocations and resources available to government departments as well as plans for their use, progress reports and recommendations made by oversight bodies (Sohail and Cavill, 2007).

Box 10: The Governance Challenges of Rural Roads in Africa

Rural roads are often the legal responsibility of local governments, but they are often planned and built by national road authorities. In addition, thousands of kilometers of roads have been constructed by agricultural projects, food for work programs or NGOs, for example –usually without the input of those who might bear the responsibility of maintenance. The majority of African countries lack a legal framework governing the rights and responsibilities of communities regarding local roads and encouraging local maintenance of roads has proven a particular challenge. Budgets for such maintenance are often as little as a tenth of the amounts required. These problems are exacerbated by the low capacity and limited pay of local roads officials.

A first step in a reform agenda would be to ensure planning for rural roads that involves communities and local governments. In addition, a legal framework governing ownership, a budgetary framework ensuring adequate maintenance and a management framework that provides capacity is required. One approach tried in Madagascar in the late 1990s involved the creation of road users associations to carry out financing and management of tertiary and access roads. These associations operate under a management contract signed by the local government, which also provides about one third of association funds. Additional funding is provided by local taxes and tolls (Calvo, 1998).

Improving Governance in Project Design and Execution

Identifying which government official is responsible for ensuring delivery of a good quality outcome is an important first step in ensuring accountability. That official should be empowered with the necessary (technical and financial analysis) resources to monitor implementation. The official should be able to act under the guidance of comprehensive and transparent rules governing both oversight and payment procedures, and face consequences for failure to act according to this guidance (Kenny, 2007). Sufficient simplicity to allow for oversight is also important. The World Bank's Second Sulawesi Urban Development Project in Indonesia (41 participating local governments, 150 implementing agencies, carried out in the midst of a rapid and ambitious decentralization program) suggests the increased vulnerability of complex projects to corruption –more than 100 firms and individuals have been debarred as a result of corruption in the project (World Bank, 2006b).

In order to help monitoring groups to determine if citizens are getting what they paid for, contracts and amendments can be published. Many countries provide access to contracts if a specific case is made under a Freedom of Information law, and the government of the Australian State of Victoria publishes all contracts (including contract revisions) for contracts worth in excess of AUS$10m (around USD $7.7m) as a matter of course (Kenny, 2006).[26] DfID's Construction Sector Transparency Initiative, which the Bank is supporting, is loosely modeled on the Extractive Industries Transparency Initiative and is designed to bring a greater level of openness to government contracting in construction. It will foster publication and review of key project details including budgeted and actual payments, a project description and any project evaluation.

[26] Maximum disclosure of contract details surrounding consultants is perhaps particularly important, because this is the area where price-based selection for well-defined deliverables is least plausible (which in turn provides considerable discretion to selection committees).

Within projects, community scorecard approaches can be used to monitor progress. In contrast to citizen report cards, these approaches involve a discussion at the community level under the guidance of a facilitator who collects information on project progress and implementation to provide immediate feedback to those overseeing the project. Further enhancing the role for demand-side approaches in governance, community-driven development involves giving communities or locally elected bodies direct control over the decision making, management and use of development funds (See Box 11).

Box 11: Community Driven Development

In Indonesia, a 1997 survey of 48 villages found that less than 3 percent of village development requests proposed through the government's development planning system received funding. The Kecamatan Development Program (KDP), begun in 1998, emphasized participatory appraisals for project selection with financing provided by a combination of village and local funding and direct central government support. These features help to ensure that local priorities were the key to setting project prioritization. In the KDP, project budgets, financing and procurement decisions are discussed publicly and displayed on village information boards, each village has an independent committee to oversee contracts and implementation, and journalists and NGOs are invited in to act as watchdogs. In addition, there is an anonymous complaints mechanism which channels concerns to project authorities. KDP projects that met high local demand with close local oversight and involvement produced savings of between 25 to 56 percent over conventional infrastructure projects and carried economic rates of return ranging from 33 to 83 percent (Wong and Guggenheim 2005).[27]

The World Bank's Uttar Pradesh Swajal project is another example of using community-driven approaches as part of an effort of reform to ensure cost recovery for maintenance and partial cost-recovery for capital costs in water and sanitation. Under the project, resources were transferred to rural communities which procured materials, services and works themselves. NGOs assisted with community mobilization and private firms provided technical design specifications, inspection and monitoring. 92 percent of water supply schemes and 100 percent of latrines constructed under the project remain fully functional (World Bank, 2006b).

Output-Based Aid provides an attractive vehicle to reduce the potential development impact of failures of governance. OBA is a strategy for using explicit performance-based subsidies to support the delivery of basic services. It involves delegating service delivery to a contractor, under contracts that tie disbursements to the services or outputs actually delivered (Kenny and Mumssen, 2007). The outputs defined are 'technology neutral' (delivery of electricity services of a given quality to a given community) rather than technology specified. As such, the OBA process is less susceptible to corrupt agents designing project specifications in such a way as to favor a particular bidder. The process is also likely to limit cases where unnecessary or unsustainable projects are undertaken because they provide greater opportunities for corruption. The outputs of an OBA project (water or power connections, a pothole-free road) are also easily monitored, and payment is withheld until outputs are achieved. As a result, even if corruption does occur in OBA projects, the risk that it significantly reduces the development impact of the financing is limited. An OBA project supported by the World Bank in Dakar, Senegal, provides on-

[27] Similarly, community-based construction of schools in Zambia and Mauritania cut costs by one half to two thirds over national competitive bidding approaches –although some considerable part of this saving was due to lower architectural standards (Theunynck, 2006).

site sanitation facilities to poor households. All payments to local builders constructing the sites (as well as to non-government agencies implementing the scheme) are withheld until after site construction, with some financing held back until after a period of monitoring usage for several years, to ensure sustainability in construction and demand.

Within the procurement process itself, there is scope for interventions covering e-procurement, financial management information systems, transparency and third-party (NGO or external professional) oversight rules that are applicable across sectors. Companies that have previously broken laws, that do not have an internal system of controls in place, or that have been selected in non-competitive bids might be subject to additional oversight by an independent inspector acting as an integrity monitor, with access to internal documents and deliberations on a confidential basis. The World Bank's Paraguay Road Maintenance project combined a number of features to improve governance and reduce corruption at both the sector and project level (See Box 12).

Box 12: The Paraguay Road Maintenance Project

The Paraguay Road Maintenance Project used two workshops held by the Ministry of Public Works to discuss sector governance weaknesses –these provided input into sector reform proposals and project design. Results elements adopted included a framework of monitorable output indicators to be tracked, but also baseline and follow-up surveys to provide evidence of socio-economic project impact. Transparency measures included an active program of dissemination prior to and during the project, as well as electronic publication of procurements, contract award and implementation progress, complaints procedures and other project and sector-related documents and policies. Participatory processes were used in the design of the local (unpaved) roads component of the project, which also involved local cost-sharing. Local universities will also be involved in monitoring physical quality of outputs for output-based project components.

Combined with World Bank led fiduciary assessments, the consultation process also prompted the development of a number of mitigation measures regarding project fiduciary arrangements, including new financial management systems and improved audits, and an enhanced supervision process involving the monitoring of 'red flags' such as price variance in bids and procurement delays, laid out in an annex to the project documents.[28]

Implications for Infrastructure Investment

Governance plays a key role in determining the development impact of investment operations in infrastructure. Even projects that are chosen on the grounds of strong demand and that are well built and corruption-free, will have considerably reduced macroeconomic impact if sector governance is weak. Furthermore, as global anticorruption efforts involving the UN, the OECD and multilateral development banks ramp up, there is a growing fear that countries which are perceived to be corrupt will lose access to the international skills, knowledge and finance of firms unwilling to face the risk of global sanctions (Box 13). Given this, sectoral analysis of governance and sector-level responses in terms of institutional capacity building should have an increased importance.

[28] Available here: http://web.worldbank.org/external/projects/main?pagePK=64283627&piPK=73230&theSitePK=40941&menuPK=228424&Projectid=P082026

Box 13: Potential Negative Spillovers of a Global Anticorruption Drive

International anti-corruption initiatives such as the OECD Anti-Bribery Convention as well as institutional initiatives such as World Bank investigation and blacklisting of firms that bribe both raise the potential global cost of corrupt activities. In countries and sectors where the perceived norm is to bribe, international firms have the choice to exit or face an increased risk of home country prosecution and global blacklisting. The Confederation of International Contractors Associations and the World Economic Forum report anecdotal evidence that companies which have adopted strict anti-corruption procedures have, as a result, lost business in some markets. Additional anecdotal evidence from World Bank staff suggests an increasing reluctance of international contractors to bid on World Bank projects in countries perceived to be corrupt. There is evidence that the 1977 Foreign Corrupt Practices Act had this impact on US firms, with US foreign direct investment diverted from countries perceived to be corrupt towards those perceived to be less so (Hines, 1995). In countries where corruption is perceived to be widespread this may leave construction or concession contracts to be bid on by a few local firms who face lower potential costs of corruption and which may lack the capacity to carry out the work. This suggests the vital importance of combining global approaches to anticorruption with strong actions at the national level, or counties that are perceived to be corrupt may face the consequence of lower competition, reduced quality and (potentially) an increase in corruption at the national level.[29]

Regarding the focus of intervention, the introduction of private competition, where it is feasible, should remain a cornerstone of reform in infrastructure, and there is still some considerable scope for additional progress in telecommunications, power production and infrastructure construction for public clients. Improved state-owned utility operation as well as greater private sector participation require further development of both robust privatization processes and the institutions of regulation. The importance of regulatory approaches that can work in environments of limited institutional capacity suggests the need to move beyond regulatory independence towards the design of low-discretion, low-capacity regulatory approaches suited to developing countries.

The continued presence and importance of state-owned operations in infrastructure suggests the need for a renewed search for methods to improve their performance. Again, this would include an enhanced emphasis on transparency, outside monitoring and audit and stakeholder engagement through tools including scorecards and NGO monitoring. The need for support begins at the level of the sector, helping ministries to improve planning and budgeting as well as extending transparency and participatory involvement.

In addition, governments and donors have fiduciary obligations to ensure that their funds are used effectively for the intended purposes. Corruption joins capacity limitations, limited knowledge and capture by special interests as a hurdle to overcome in meeting this obligation. As a result, there is a role for increased awareness of the corruption issue, including the development of generic lists of 'red flags' for types of infrastructure project that could inform project teams as they monitor project implementation.

At the same time, it is worth emphasizing that our knowledge of corruption at the sector level is inadequate to suggest, beyond a very broad range, which infrastructure projects in which countries are likely to be most at risk, and therefore justify increased monitoring

[29] A suboptimal response on the part of donors would be to further ring-fence projects to encourage international bidders.

(Box 14). Under these circumstances, the only justifiable procedure regarding increased focus due to concerns with corruption would be to demand greater oversight on all projects (at significant cost) or a very few where we have particularly strong reasons for concern beyond survey and perceptions indicators. Once more, this suggests that considerably increased focus by donors or governments on individual procurement processes should be a 'last line' strategy in cases where broader approaches at the project or sector prove impossible and there are strong reasons to believe that corruption is a particularly severe problem.

Box 14: Measuring Progress in Governance and Anticorruption: Do We Have 'Actionable Indicators' in Infrastructure?

Measuring the status and progress of infrastructure governance will be important to evaluate the success of approaches designed to improve it. At the same time, our knowledge of the exact extent of corruption or quality of governance in infrastructure by sector, country or activity is limited. What evidence we have suggests that general perceptions measures are poor proxies for governance weaknesses or levels of corruption in infrastructure. For example, taking construction firms in the 1999-2000 BEEPS dataset which reported on the level of corruption in Eastern European government contracting, only around 14 percent of the variation in answers is accounted for by country of residence (Kenny, 2006). It is clear that we cannot say with any certainty which of these countries is more or less corrupt than average when it comes to government construction contracting, and this on a measure of bribe payments rather than the impact of corruption on development outcomes.

The available survey evidence covering infrastructure in particular paints a complex picture of within-country variation in the levels of corruption by activity and area. And that available survey evidence is patchy --not least, it is hard to survey monopoly providers on an anonymous basis as the extent of corruption in their industry, for example. Furthermore, we have almost no evidence regarding the prevalence of different types of corruption –payments for orchestrated collusion versus payments for changes in contract terms after award, as it might be—despite their significantly different potential to derail sector performance and project outcomes.

This limited granularity of sectoral corruption indicators in particular suggests that it would be a mistake to use the available indicators to decide on infrastructure lending levels or policies towards particular countries. At the same time, we have seen that corruption is a symptom of failed governance, and it is of concern because it can reduce the development impact of infrastructure investments. Given this, the need for accurate measures of corruption per. se. is reduced.

To measure progress in the effort to improve governance requires measures of the nature of governance institutions (the status of the regulator, the nature of corporatization, transparency regarding concessions and contracts, and so on), and measures of outcomes to determine if governance changes are having a development impact (infrastructure rollout, prices, 'technical' losses).[30] One route through which improved governance will improve outcomes is through a reduction in the impact of corruption, but a measure of corruption itself is not required to judge success or failure of governance initiatives. If 'actionable indicators' regarding governance and anticorruption are required to set policy or determine progress, these can be selected from the more objectively verifiable of input and output measures related to institutional progress and outcomes. The role for survey and perceptions indicators of corruption itself should probably be limited to use in analytical work designed to accommodate for the level of noise such indicators contain.

[30] Input measures might include indicators of transparency (contract publication), the presence of a planning document including major sector investment decisions and the extent to which it is followed, estimates of the adequacy of maintenance funding based on international benchmarks, SOE externally audited accounts, indicators of sector structure and competition, and so on. Output indicators might include percentage of roads in good condition, traffic volumes, non-technical losses, percentage of production paid for, extent of access to infrastructure and so on.

This is not to say that there is nothing that can or should be done to sensitize project teams to red flag warnings. The Paraguay Roads Project discussed above included a project-specific list of red flags –many of which are also indicators of potential problems with project delivery linked to failures in capacity or other causes not necessarily the result of corruption. Development of such an indicator list can be a useful tool not only to monitor for potential cases of corruption but also, more broadly, to provide an overview of project health and the potential need for greater supervisory support for projects carried out in an environment for weak governance.

Furthermore, although it is difficult to differentiate levels of corruption at the sector level across countries, different types of projects and components carry distinctly different levels of risk. Large, complex, one-of-a-kind components where there are few potential bidders and where change orders are likely will be considerably more susceptible to corruption than simple procurements based on standard or commodified products. This suggests the potential for the development of a risk-based menu of anti-corruption options based around project or component type. Where components are large and complex, for example, the return to third party monitoring, independent physical and financial audit, integrity pact mechanisms and/or increased procurement transparency is likely to be considerably higher in terms of improved outcomes.

The above analysis of experience suggests that a range of approaches have already been tried in projects to address governance and anti-corruption at the sector and project level. There is a considerable role for greater application and testing of these existing techniques. This will require a further shift in donor and ministry incentives from lending or budget volume to lending or budget outcomes, but also a greater acceptance of project risk. The danger of a failed project appears greater in institution-building than in infrastructure construction. This reflects in part a perhaps blinkered approach to project outcome analysis which focuses too narrowly on asset rates of return rather than the project's impact on country-wide returns to investment. But the appearance of risk also reflects the fact that institution-building is complex and frequently depends on a set of political and economic circumstances that can rapidly change.

In the particular case of work in more challenging institutional environments, this also suggests the need for movement away from a 'risk-management system' to a 'risk-weighting method.' The higher potential for poor or slow execution or diversion of funds should be weighted against a potentially greater payoff in terms of development impact, and (where payoffs appear considerable) greater resources should be provided for support of institutional development and project management rather than abandoning the project in favor of a simpler operation.

An additional incentive to sector-level governance reform in infrastructure would be a greater number of success stories alongside analyses of failed attempts. Many of the approaches suggested above have not been subject to rigorous analysis –and very few to repeated rigorous analysis allowing for a solid understanding of success factors. We lack sufficient data both on governance inputs (details of regulatory or SOE structure) as well as outputs (transmission and distribution losses, road quality, prices) in order to make

definitive statements on the types of reform that carry the highest payoffs in particular environments.

Conclusion

A new pragmatism surrounding the tarnished bullet of private participation should not foster commitment to a new silver bullet of institutional reform. Not least, evidence that corruption remains a significant issue in the wealthiest countries in the world suggests the complexity of progress –and that zero tolerance is an implausible stand.[31] Experience of the process of governance and institutional reform to date is that it is a complex and lengthy process prone to false starts and setbacks.

Improved governance involves transactions costs, and so there is an optimum level of governance which avoids high-cost limited impact interventions. Anti-corruption measures, much like other regulation designed to minimize market or government failure, can carry higher costs than the economic benefit of the reduced corruption with which they are associated. Ben Olken's (2004) examination of anti-corruption interventions in the Indonesia KDP project suggested that sending out invitations to village meetings to discuss projects may have fallen into that category, for example. Similarly, international competitive bidding may reduce opportunities for local collusion, but it can also greatly extend procurement processes and add significantly to costs.[32] Again, even if we set the goal of reducing corruption to zero, it is not clear that we have the tools to accomplish such a goal. For example, the Olken study found that an estimated 24 percent of expenditures were "lost" in materials theft, suggesting that community-driven development is not a panacea even if it can be a powerful tool to improve outcomes.

Having said that, governance reform, particularly at the sector level, can carry high payoffs. And ignoring governance weaknesses can significantly dampen economic returns to infrastructure projects. Even with (especially because of) imperfect knowledge of what works in the sector, greater effort and evaluation regarding infrastructure governance should be a priority.

[31] The recent corruption scandal involving Randy Cunningham, a Congressman from San Diego in the US, is a case in point: he received $525,000 in return for $6m in government contracts (Newsweek 3/20/06 "The CIA: Questions About a Contract"). This is a payoff as a percentage of the contract value of a little under 10 percent –around the same as the level of bribe payments reported for government contracts in Eastern Europe and Central Asia. That the price demanded by Cunningham was so low suggests an active market for corruption even in the US.

[32] In the case of school construction, bundled ICB approaches have been abandoned due to high cost in favor of delegation to contract management agencies, NCB and community-based approaches by the 1990s (Theunynck, 2006).

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Figure 1: Access to Water

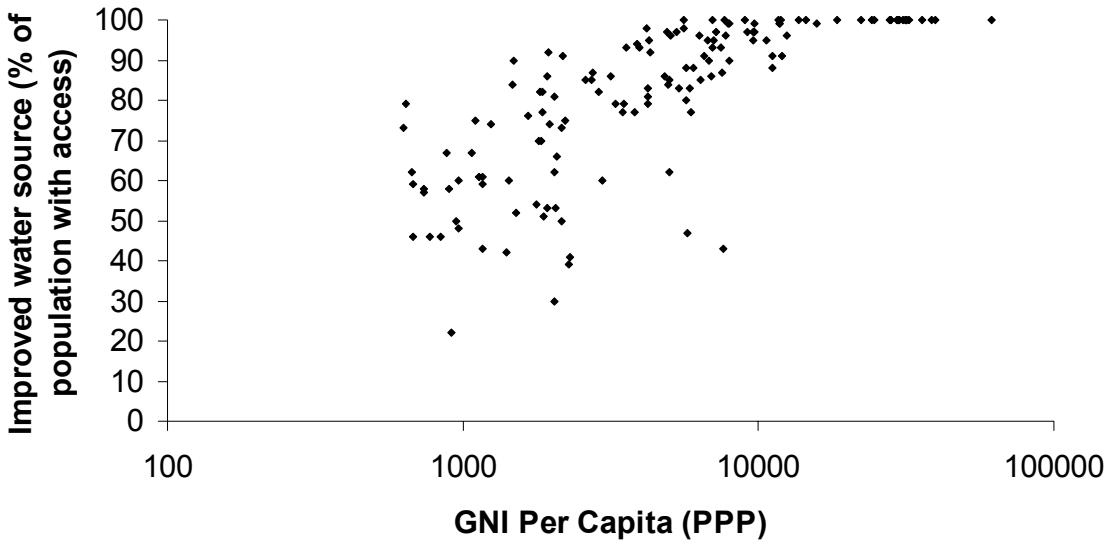

Figure 2: Electricity Household Access

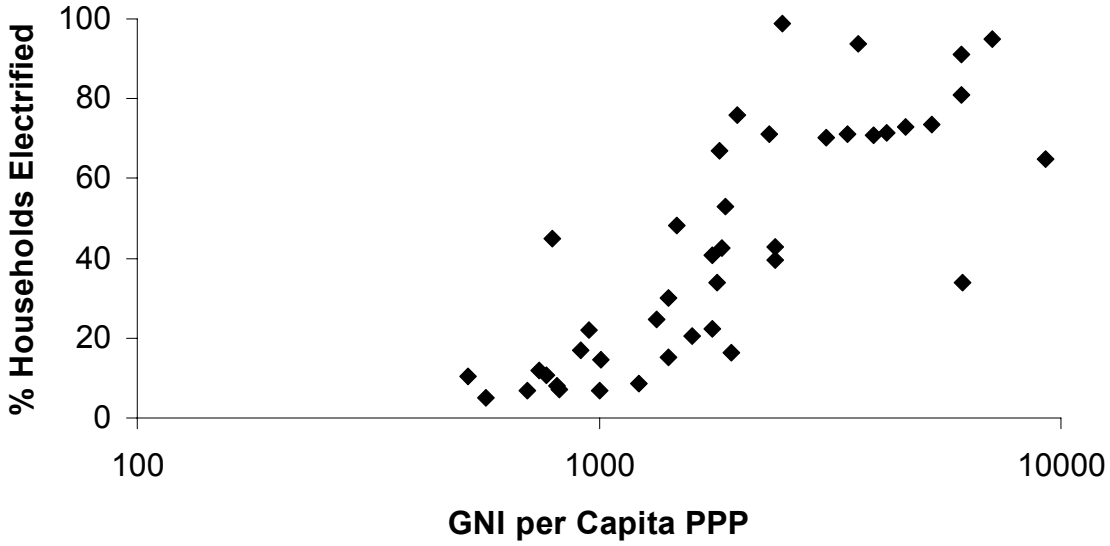

Figure 3: Electricity T&D Losses